REMARKS

The Office Action contained one rejection of the claims under 35 USC §102. The rejection will be responded to under the corresponding subheading below.

a. Response to §102 Rejection

Claims 1, 2, 12 and 13 were rejected under 35 USC §102(e) as being anticipated by Frus et al. (U.S. 5,574,011). For the reasons explained below, Applicant respectfully traverses the rejection and requests that it be reconsidered and withdrawn.

In the Office Action, the Examiner held that Frus discloses an electronic circuit for controlling a gas discharge lamp. Applicant respectfully disagrees: Frus does not disclose a circuit for controlling a gas discharge lamp, as is required by Applicant's claims, but instead discloses a circuit for producing short, discrete sparks. The "lamp 50" in Frus is in fact a "spark generating device" most generally applicable to an ignition system for an automobile or an aircraft (see column 21, line 3 and column 22, line 39). Although Frus mentions possible applications in lamps, the reference explicitly states that these are "arc-lamps" and "strobe lamps" (see column 6, line 29).

The invention in the present application is not directed to strobe lamps or the pulsed operation of arc-lamps; instead, it is concerned with continued gas discharge lamps, which after they are struck are run continuously. Strobe lamps and arc-lamps are quite different from continuous gas charge discharge lamps. For example, with a strobe lamp it is normally desirable to generate a very short but intense flash of light. A flash of light from a strobe lamp lasts typically one microsecond to one millisecond, following which the gas discharge is extinguished.

Striking a lamp and running a lamp continuously, as is done in the present invention, require electrical signals considerably different from those described in Frus. As is noted in the introduction to the present application, a high initial voltage is needed to initiate the lamp discharge. Once the discharge has been formed through the gas inside the lamp, resistance to a flow of current drops markedly, and it is necessary to limit the lamp current in order to safely sustain the discharge.

Frus, by contrast, generates only a single shaped pulse for each discharge event, with the individual synchronized pulses being combined in different ways to control the characteristics of the spark. As far as the operation of the spark device 50,550 is concerned, each spark event is

completely independent of any preceding spark events, and also does not affect any subsequent spark events. Consequently, there is no series of pulses as required by Applicant's claims.

Even allowing for the fact that Frus does not disclose a pulse train or a series of pulses as required by the present claims, there is a significant difference between the frequency of the individual pulses in Frus and the frequency of the essentially continuous series of pulses in the present invention. In particular, Applicant disagrees with the assertion made in the Office Action that Frus has "a means for generating a high frequency pulse train for being applied to the electrodes of the lamp to light the lamp". The mention of high frequency chopping at 10 to 100 kH in column 6, line 66 has nothing to do with the frequency of operation of the spark-generating device 50,550. This passage is merely describing the operation of a step-up transformer that provides a high voltage input to the rectifying diodes 31. The rectified high voltage is then used to charge up the capacitors 30, and it is only after the capacitors have been charged up that the triggering circuit 33 is activated to provide a single pulse to the sparking device 50. This type of transformer is, of course, extremely well known throughout the field of electronics, and is normally referred to as a "switched mode" transformer.

The frequency of operation of the pulse generation circuits described in Frus is therefore very much lower than the frequency of operation of the circuit of the present invention. For example, see column 21, lines 16-18 of Frus, where the frequency of operation is described as being 2 Hz. Such a low frequency of operation is only to be expected for a circuit used in "an aircraft turbine ignition system" (see column 21, line 3). Such low frequency operation is consistent only with discrete discharge events, while in contrast the present invention requires high frequency operation in order to maintain a continuous gas discharge.

In summary, Frus neither teaches nor suggest an electronic circuit for both striking <u>and</u> continuously lighting a gas discharge lamp. The low frequency operation of the circuits described in Frus makes these circuits only suitable for discrete discharge events, such as those in strobe lamps. Furthermore, the skilled person reading the document would appreciate that none of the circuits described in Frus could be modified to provide a continuous lighting of a lamp, for the reason that all of these circuits require a storage capacitor 30,530 to be charged up prior to each discharge event. Such charging up can only occur after the capacitor has discharged in the previous discharge event, and since the charging up takes time, there is an inevitable delay between each discrete discharge event. The circuits described in Frus are therefore all "single shot" pulse generating circuits and therefore do not produce a high frequency pulse train as required by Claim 1 of the present invention.

In order to anticipate a claim, the reference must teach every element of the claim (MPEP 2131). For the reasons explained above, Frus fails to teach a circuit for controlling a gas discharge lamp or means for generating a high frequency pulse train, both of which are required by existing claim 1. However, in order to better distinguish the claims over Frus, Applicant has amended claim 1 to further recite that (i) the electronic circuit is for "both striking and continuously lighting a gas discharge lamp", (ii) that the high frequency pulse train is applied to the electrodes "to light continuously the lamp", and (iii) the first and second "high frequency series of pulses" are generated and combined additively to produce a high frequency pulse train. None of these elements is shown by Frus.

In summary, Frus neither teaches nor suggests an electronic circuit for both striking and continuously lighting a gas discharge lamp, by means of a high frequency pulse train generated from a first high frequency series of pulses combined additively with a second high frequency series of pulses, as is required by Applicant's claims. Applicant therefore respectfully submits that Claim 1, as amended, is both novel and non-obvious over the cited reference, and that Claim 1 and its dependent claims are now in condition for allowance.

i. Conclusion

Applicant respectfully requests reconsideration of the present application in view of the amendments and remarks set forth herein. It is believed that all claims are now in condition for allowance. If there is any matter that can be expedited by consultation with Applicant's attorney, such would be welcome. Applicant's attorney can normally be reached at the telephone number given below.

Signed at Bellingham, County of Whatcom, State of Washington this 5th day of May 2003.

Respectfully submitted,

DAVID JOHN AARONS

By [signature]

Todd N. Hathaway, Reg. No. 32,991
119 N. Commercial St. #620
Bellingham, WA 98225-4437
(360) 647-1976

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on the date shown below.

5-05-03
Date

Dale Y Perez
(Print name of person mailing paper)

[signature]
(Signature of person mailing paper)